No. 673,125. Patented Apr. 30, 1901.

J. F. JONES & E. S. CLEGG.

APPARATUS FOR TREATING SKINS.

(Application filed May 9, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

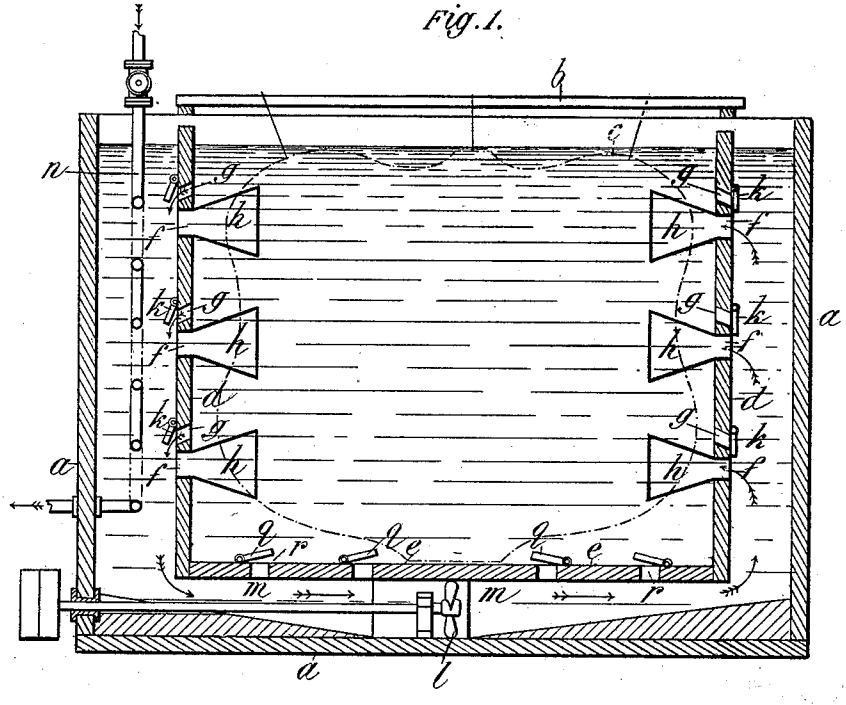
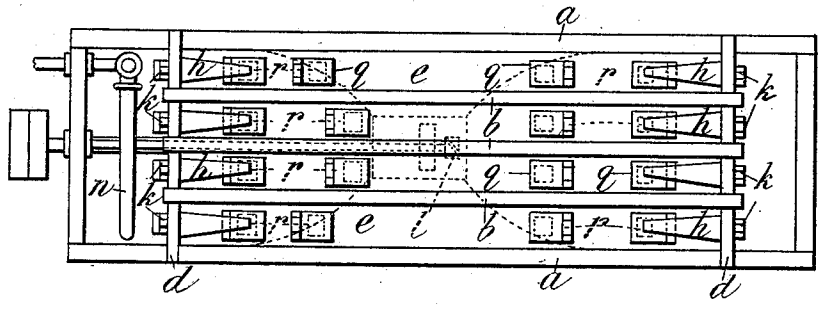


Fig. 2.



Witnesses.
Jno. T. Cross.
Chas. K. Bennett

Inventors,
John Frederick Jones and
Edward Seymour Clegg.
by Howe Ellis.
their Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 673,125. Patented Apr. 30, 1901.

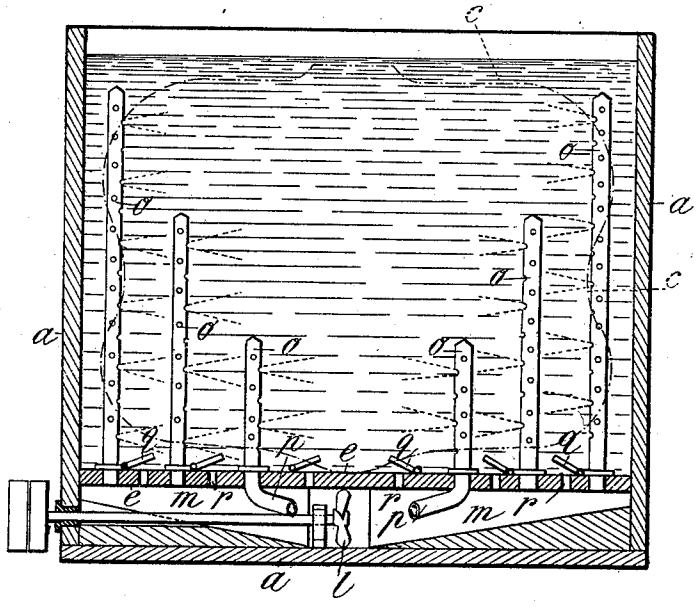
J. F. JONES & E. S. CLEGG.

APPARATUS FOR TREATING SKINS.

(Application filed May 9, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.



Witnesses.
Jno. T. Cross.
Chas. K. Tennett

Inventors,
John Frederick Jones and
Edward Seymour Clegg.
by Johnson Ellis
their Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN FREDERICK JONES, OF WANDSWORTH, AND EDWARD SEYMOUR CLEGG, OF SOUTH KENSINGTON, ENGLAND.

APPARATUS FOR TREATING SKINS.

SPECIFICATION forming part of Letters Patent No. 673,125, dated April 30, 1901.

Application filed May 9, 1899. Serial No. 716,135. (No model.)

To all whom it may concern:

Be it known that we, JOHN FREDERICK JONES, engineer, residing at 59 Haldon Road, Wandsworth, in the county of Surrey, and EDWARD SEYMOUR CLEGG, residing at 35 Drayton Gardens South, South Kensington, in the county of Middlesex, England, subjects of the Queen of Great Britain, have invented a certain new and useful Apparatus for the treatment of Hides and Skins, of which the following is a specification.

This invention relates to an apparatus for the treatment of hides and skins for use in the tanning, curing, or liming of the same and to apparatus for carrying out such treatment.

The chief object of our invention is to provide an apparatus in which may be treated a large number of skins in a thorough and efficient manner and in much less time than has heretofore been required, while the liability of the skins coming in contact with each other is avoided.

According to our invention we cause the tanning or other solution or liquid to flow in a constant stream over the surfaces of the hides or skins, which are arranged side by side at a suitable distance apart. We provide appropriate means for directing the solution or liquid over all parts of the surfaces to be treated and for reversing or changing the path of circulation of the solution, if desired.

In order that our invention may be clearly understood and readily carried into effect, we will proceed to describe the same more fully with reference to the accompanying drawings. It is to be understood that these drawings are by way of example only and that in practice the apparatus may be arranged to contain a considerably larger number of hides than are here shown.

Figure 1 is a sectional elevation, and Fig. 2 a plan, of an apparatus constructed according to our invention. Fig. 3 is a view similar to Fig. 1, showing a modified form of our invention.

Referring first to Figs. 1 and 2, *a* is a pit or tank constructed of suitable material. Near each end of the pit we arrange a partition *d*, inclosing with the false bottom *e* a space, within which the hides *c* are placed. The hides are suspended from a frame *b*, disposed over the pit. In the said partitions we provide two sets of apertures *f* and *g*, three of each set being arranged, in the example shown, between adjacent hides and between the outside hides and the side walls of the pit. It is obvious, however, that any suitable number and arrangement of the said apertures may be employed. The apertures *f* are provided with funnels *h*, having elongated flattened mouths, tubes, or other conduits for spreading the liquid forced therethrough. The apertures *g* are provided with valves, such as the clacks *k*, by which the passage of liquid from the outside to the inside of the partitions through such apertures may be prevented. In the space between the false bottom *e* and the actual bottom of the pit we form a channel *m*, in which we arrange a screw-propeller *l* or a pump, paddle, or other means for compelling the liquid to pass through said channel in one or the other direction. It will be observed that the middle of this channel is of circular shape in cross-section, so as to fit the propeller, and that said channel is reduced in depth while being increased in width (as indicated by the dotted lines in Fig. 2) toward its ends, so as to distribute the liquid uniformly along the width of the channels or passages formed between the partitions *d* and the ends of the pit. Apertures *r* are formed in the false bottom *e*, affording communication between the channel *m* and the receptacle for the hides. These apertures are provided with valves *q*, similar to the clacks *k*, but disposed upon the receptacle side of the apertures. These valves *q* are preferably adapted to be maintained in a raised position by adjustable means, so that the quantity of liquid passing through the apertures *r* may be regulated. *n* is a heating or cooling coil for maintaining the liquid at any required temperature. The pit is adapted to be filled with liquid up to such a height as to nearly or completely submerge the hides suspended therein. The actuation of the propeller will then produce a circulation of the liquid, causing it to pass through the channel *m*—say from left to right—as indicated by the arrows in Fig. 1. The clacks *k* will

automatically close over the apertures *g* in the partition at the right-hand end of the pit, and the liquid will be forced through the aperture *f* and funnels *h* of such partition. By this means the liquid is projected between the hides in such a manner as not only to be distributed over the whole surfaces thereof, but also to maintain such hides in position and prevent their coming together or adhering at portions of their surfaces, and thereby hindering the action of the liquid upon such portions. The liquid will also pass up through the apertures *r*, and thus serve to prevent the accumulation of sediment or layers of the liquid having increased density at the bottom of the receptacle. The liquid will not readily pass through the funnels in the opposite direction, and consequently the clacks over the apertures *g* in the partition at the left-hand end of the tank are automatically opened by the liquid, as shown in Fig. 1, the liquid flowing through said apertures and being again drawn through the channel *m* by the propeller *l*. We sometimes provide means for fixing the clacks *k* of those apertures *g* through which the liquid is flowing in any desired position, so as to check the flow of liquid through such apertures. We may, however, dispense with the apertures *g* and so form the funnels *h* that the liquid will readily pass through them in either direction. If desired, the channels or passages formed between the partitions *d* and the ends of the pit may be closed at their upper ends, so as to enable the force or velocity of the circulating liquid to be increased. The flow of liquid may also be regulated by adjustable valves disposed over the apertures *f*.

In the modification shown in Fig. 3 the partitions *d* and their apertures are dispensed with, and instead thereof we employ vertically-arranged tubes or headers *o*, forming passages for the liquid, which tubes may conveniently be of circular or oval shape in cross-section. These tubes are closed or partially closed at the top and are perforated at the sides or surfaces adjacent to the hides, some or all of the apertures being preferably so arranged as to direct the liquid delivered therefrom toward the center of the pit. The apertures are also arranged to spread the liquid, so as to direct it to all parts of the hides. In the example illustrated three such tubes, of different lengths or heights, are arranged on each side of the pit between adjacent hides and between the outside hides and the side walls of the pit. The number of tubes and their lengths and arrangement may, however, be varied. The channel *m* is similar in shape to that shown in Figs. 1 and 2. Apertures *r*, provided with valves *q*, are provided in the false bottom in a manner similar to that described with reference to Figs. 1 and 2. In order that the shortest of the tubes *o* that are toward the side of the tank may receive a stream of liquid equal to that received by the other tubes, we may provide the lower end of such tubes with a flaring extension *p*, bent and directed toward the cylindrical part of the channel in which the propeller *l* works, or we may effect this object by means of suitably-disposed baffle-plates.

It will be readily understood that when the propeller is actuated the liquid will be caused to flow past the same and rise in the tubes *o* at one end or side of the pit, from which tubes it will be projected through the apertures therein onto the surfaces of the hides. After traversing such surfaces the liquid will enter the tubes *o* at the opposite end of the pit and be again drawn through the channel *m* by the propeller. It will also be seen that in both of the forms of our invention illustrated the direction of the circulation of the liquid can be reversed by merely reversing the direction of rotation of the propeller.

It is obvious that instead of causing the liquid to flow over the surfaces of the hides in a horizontal direction we may so arrange the apparatus as to cause the liquid to flow vertically or at any inclination over such surfaces, either upward or downward.

The circulation may sometimes be effected partly by gravity, there being a reservoir above the pit to which liquid is pumped from a channel or hollow at the bottom of the pit, the said reservoir communicating with spreading channels, troughs, or funnels arranged above, at the side or end of, or between the hides.

We are aware that in the treatment of hides means have sometimes been used for agitating the tanning or other liquid to expedite the process by bringing fresh portions of the liquid into contact with the surfaces of the hides. Such agitation, however, is not or is only partially effective, because the liquid is only disturbed and is not circulated and distributed through conduits, as in our improved method. Moreover, it possesses the great disadvantage that it displaces the hides and is liable to bring them into contact with each other, so that they adhere over portions of their surfaces and render the treatment defective. Our invention obviates this disadvantage.

What we claim is—

1. In apparatus for the treatment of hides and skins the combination with a receptacle for the hides and the liquid with which said hides are to be treated, and means for circulating said liquid comprising channels and a liquid-propelling device, of means such as nozzles for directing the liquid between adjacent hides, substantially as described.

2. Apparatus for the treatment of hides and skins comprising a receptacle for the liquid with which said hides are to be treated, means for suspending the hides therein from the upper part of said receptacle, channels connected with said receptacle through which liquid may be drawn or propelled, nozzles projecting interiorly from the walls of the receptacle and communicating with the said chan-

nels, and means for causing the liquid to pass through said channels and nozzles, substantially as described.

3. Apparatus for the treatment of hides and skins comprising a receptacle for the hides and the liquid with which said hides are to be treated, channels communicating with said receptacles at each of their extremities, a valve at that end of each channel through which the liquid enters the channel, a nozzle at that end of each channel through which the liquid passes therefrom back to the receptacle, and means for propelling the liquid through said channels so as to circulate the same, substantially as described.

4. Apparatus for the treatment of hides and skins comprising a receptacle for the hides and the liquid with which said hides are to be treated, a channel adjacent to such receptacle, a device in such channel for propelling liquid therethrough in either direction, passages communicating with said channel, apertures affording communication between said passages and the receptacle, nozzles attached to said apertures having elongated mouths and arranged to project the liquid passing therethrough between adjacent hides suspended in the receptacle, and valves for controlling the flow of liquid through the apertures, substantially as described.

In testimony whereof we have hereunto set our hands, in presence of two subscribing witnesses, this 22d day of April, 1899.

JOHN FREDERICK JONES.
EDWARD SEYMOUR CLEGG.

Witnesses:
H. ASHBY NORRIS,
J. COLLINS.